

Application Serial No. 09/721,141

REMARKS

The Applicant and the undersigned thank Examiner Irshadullah for the careful review of this application. Claims 40-49 have been rejected. Upon entry of this amendment, Claims 40-49 remain pending in this application. The independent claims are Claims 40, 43 and 44. Consideration of the present application is respectfully requested in light of the above amendments to the application and in view of the following remarks.

Claim Rejections under 35 U.S.C. § 103(a)

The Examiner rejected Claims 40-49 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,406,476 to Deziel, Jr. et al (hereinafter the "Deziel reference") in view of U.S. Patent No. 5,893,074 to Hughes et al (hereinafter the "Hughes reference"). The Applicant respectfully offers remarks to traverse these pending rejections.

Independent Claims 40, 43, and 49

The rejection of Claims 40, 43, and 49 are respectfully traversed. It is respectfully submitted that the Hughes and Deziel references fail to describe, teach, or suggest (1) dividing the task into N assignments, each of said N assignments identifying only one of the N resources, each assignment comprising a portion of the work that corresponds only with a single, individual resource, each resource comprising one of a non-human and human object capable of performing an assignment; (2) determining assignments that are independent of other assignments; (3) determining assignments that have finish date task constraints; (4) determining assignments that have start time task constraints; (5) scheduling the assignments that have start time task constraints before the assignments that are independent of other assignments and assignments that have finish date task constraints; (6) scheduling the assignments that are independent of other assignments; and (7) generating a schedule comprising the N assignments which is balanced and maximizes a utilization of the N resources, as set forth in amended independent Claims 40, 43 and 49.

unschedulable or schedulable list. Referring to FIG. 3a, for example, activities A and B, having no unschedulable predecessors, are moved to the schedulable list while activities C, D, E and F remain on the unschedulable list [Stage 3(a)2]. The activities on the schedulable list are then ordered according to the amount of least slack. Thus activity A, which has a smaller amount of slack than activity B, is scheduled and moved from the schedulable list to the scheduled and on-going list [Stage 3(a)3]. The resources utilized by activity A are allocated thereby identifying, for example, that activity a requires 0.25 of resource 1, 0.5 of resource 3 and 1 of resource 5." [Bracketed material supplied and emphasized, also emphasis supplied.] See Deziel reference, column 9, lines 48-68.

"Activity B is then moved to the scheduled and ongoing list and activity B resources are allocated. However, activity B requires one full day of resource 1 and at that time, only 0.75 is available due to the fact that activity A requires 0.25 of resource 1. Thus a resource arc is added, which provides temporal precedence to activity A so that activity A will be performed prior to activity B. Activity A is then moved to the scheduled and done list and activity B, having its resource arcs included showing it has to wait for resource 1 to be used by activity A before it can utilize resource 1, is moved to the scheduled and on-going list [Stage 3(a)4]. The process continues by determining if any of the activities on the unschedulable list have predecessor activities which are now scheduled. Thus for example, if activity F requires that activity B be performed first, B is now on the scheduled list and therefore activity E can be moved to the schedulable list to be processed and scheduled." [Bracketed material supplied and emphasized.] See Deziel reference, column 10, lines 1-18.

From the passages above, it is clear to one of ordinary skill in the art that the Deziel reference is describing activities which are different from the claimed terminology of "assignments." Figure 3a reproduced above demonstrates that the activities of the Deziel reference are associated with a plurality of resources instead of a single individual resource. For example, see the section of Figure 3a highlighted with a dashed circle. In that dashed circle, Activity A of Figure 3a is associated with resources 1, 3, and 5 where Activity A requires a quarter (0.25) day from Resource 1, a half-day (0.5) from Resource 3, and one-tenth (0.1) of a day from Resource 5.

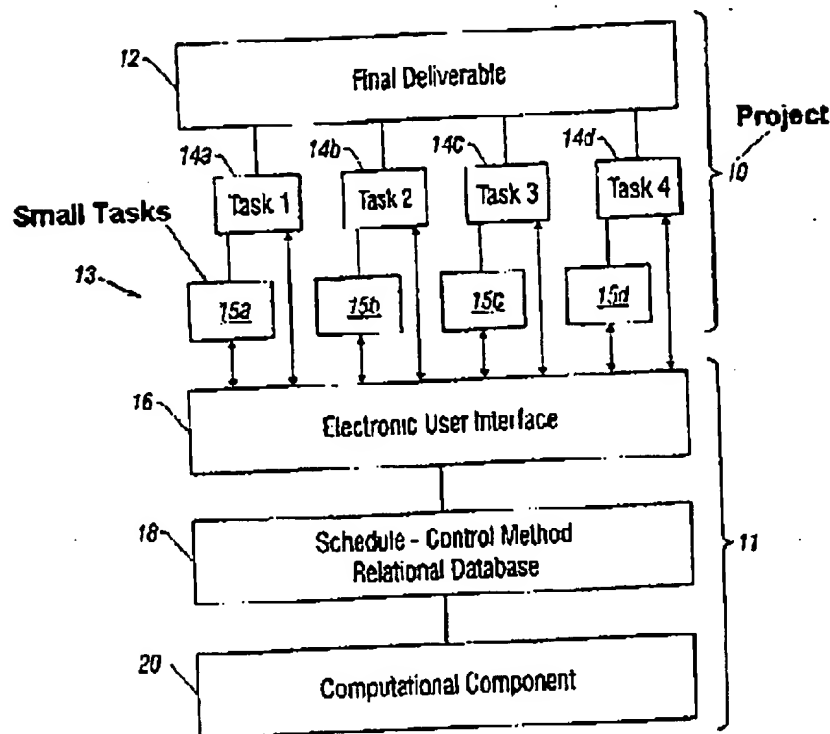
In light of Figure 3a and its corresponding text reproduced above describe, it is apparent that the Deziel reference describes a method for scheduling activities, where each activity includes a plurality of resources. Meanwhile, the claimed invention

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describes a method of scheduling assignments to single, individual resources. Specifically, each independent claim recites that each assignment comprises a portion of work that corresponds with only a single individual resource. Further, each independent claim recites tasks that are divided to form each of the assignments.

Therefore, the Deziel reference does not address a method for scheduling assignments as recited in independent Claims 40, 43, and 49. And it follows logically that the Deziel reference cannot possibly teach (1) dividing the task into N assignments, each of said N assignments identifying only one of the N resources, each assignment comprising a portion of the work that corresponds only with a single, individual resource, each resource comprising one of a non-human and human object capable of performing an assignment; (2) determining assignments that are independent of other assignments; (3) determining assignments that have finish date task constraints; (4) determining assignments that have start time task constraints; (5) scheduling the assignments that have start time task constraints before the assignments that are independent of other assignments and assignments that have finish date task constraints; (6) scheduling the assignments that are independent of other assignments; and (7) generating a schedule comprising the N assignments which is balanced and maximizes a utilization of the N resources, as recited in amended independent Claims 40, 43, and 49.

The Examiner admits that Deziel reference does not divide tasks into assignments and that the Deziel reference does not associate each assignment with a resource. To make up for this deficiency, the Examiner relies upon Figure 1 of the Hughes reference. An annotated version of Figure 1 from the Hughes reference is reproduced below. In this annotated version the Applicant has added the words "Small Tasks" and "Project" to the figure in order to clarify what is taught by the Hughes reference:



The Hughes reference describes Figure 1 (reproduced above) in detail and as follows:

"The project 10 is broken down into a series of large-scale tasks 14a-14d. Each large-scale task is broken down into smaller tasks 15a-15d. Each task 14a-14d, 15a-15d results in a product. Products are designs, mechanical or electrical parts, tests, or reports. Each task is defined by a contract between at least two responsible parties, i.e., a receiver and supplier of the product." See Hughes reference, column 5, lines 9-15.

Figure 2A of the Hughes reference further defines the large-scale tasks 14a-14d and the smaller tasks 15a-15d. An annotated version of Figure 2A from the Hughes reference is reproduced below. In this annotated version, the Applicant has added the words "Small Tasks", "Task", and "Technical Manager" to the figure in order to clarify what is taught by the Hughes reference.

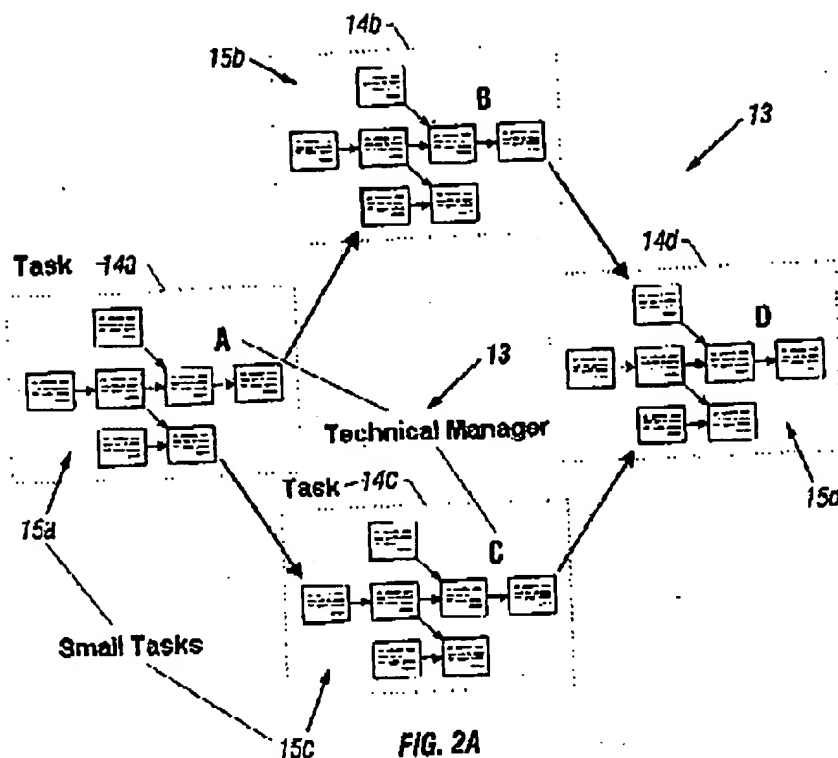


FIG. 2A

The Hughes reference describes Figure 2A (reproduced above) in detail and as follows:

"FIGS. 2A and 2B are schematic drawings showing, respectively, a schematic drawing showing how the schedule-control method is used to manage the project 10 of FIG. 1... For example, tasks 14a-d may involve science and project engineering, instrument development, ground system development, and spacecraft system development for a large-scale project such as manufacture of a NASA spacecraft. The large-scale tasks are managed by either Technical Manager A, B, C, or D." See Hughes reference, column 5, lines 42-51.

"Technical Managers A-D act as either suppliers, receivers, or both using the schedule-control method. In the shown example, Manager A supplies a product to both Manager B and Manager C. Both Managers B and C supply a product to Manager D. A contract defining the particular product to be delivered or received is established for each of these relationships using the schedule-control method. The status of each product is dynamic, evolving as scheduling events change or work is performed on the product..." See Hughes reference, column 5, lines 52-62.

"Smaller tasks 15a-d exist within each of the larger tasks 14a-d. These smaller tasks are also managed with the rec/del [receivable/deliverable] system. Here, contracts for products are established between each of the employees (i.e., suppliers or receivers) under a Manager's control. The status of each product in the project is negotiated and analyzed through the use of the electronic user interface, relational database, and computational component shown in FIG. 1. Each employee provides input data for their particular product and can receive status of the project at any given time. In this way, management of the project is distributed over and controlled by the project's entire work force, with each employee directly controlling his or her contract. This decreases the probability of cost overruns in the project, and increases the probability that the project will be completed according to plan." [Bracketed material supplied.] See Hughes reference, column 5, lines 62 through column 6, lines 1-11.

"Applicants have developed a schedule-control method for managing and controlling projects to overcome these and other limitations. The method is implemented using an electronic user interface, relational database, and computational component. Each of these components work together to process input data in a special format that is defined herein as a "receivable/deliverable" (or "rec/del") format. Using the rec/del format, the method breaks down the project into a series of smaller components, referred to herein as "tasks". Each task involves a "contract" between a supplier and a receiver. The contract results in the production of a "product". Users can enter and access up-to-the-minute input data concerning a particular product or task from the rec/del system." [Emphasis Supplied.] See Hughes reference, column 2, lines 3-16.

In light of the passages above, it is apparent to one of ordinary skill in the art that the small tasks 15a-15d illustrated in Figures 1 and 2a of the Hughes reference (reproduced above) cannot be interpreted as assignments, where each assignment comprises a portion of work that corresponds only with a single individual resource. The Examiner acknowledges this lack of correspondence with the invention recited in amended independent Claims 40, 43, and 49 by stating the following on page 5, first paragraph of the Final Office Action mailed on November 24, 2003:

"...wherein cited 'smaller tasks' infer a part (portion) of larger task which is performed by each of the employees, *termed as 'contract' (corresponding to individual resource).*" [Emphasis supplied.]

The Applicant respectfully submits that the Examiner's interpretation of the Hughes reference, specifically, the term, "contract," goes beyond the disclosure of the Hughes reference and, therefore, is improper. In other words, the Examiner is interpreting the "contracts" of the Hughes reference to only correspond to an individual resource.

Meanwhile, as clearly stated in the Hughes reference and highlighted with bold and underlining above, each task of the Hughes reference involves a "contract" between a supplier and a receiver. This means that each task or contract of the Hughes reference corresponds with more than one resource and **NOT A SINGLE RESOURCE** as recited in amended claims 40, 43, and 49.

The Applicant submits that the Hughes reference does not make up for the deficiencies of the Deziel references. And even if the Examiner's proposed combination was feasible to one of ordinary skill in the art, the proposed combination does not teach (1) dividing the task into N assignments, each of said N assignments identifying only one of the N resources, each assignment comprising a portion of the work that corresponds only with a single, individual resource; each resource comprising one of a non-human and human object capable of performing an assignment; (2) determining assignments that are independent of other assignments; (3) determining assignments that have finish date task constraints; (4) determining assignments that have start time task constraints; (5) scheduling the assignments that have start time task constraints before the assignments that are independent of other assignments and assignments that have finish date task constraints; (6) scheduling the assignments that are independent of other assignments; and (7) generating a schedule comprising the N assignments which is balanced and maximizes a utilization of the N resources, as recited in amended independent Claims 40, 43, and 49.

In addition to the Hughes and Deziel references not teaching all of the elements recited in amended independent Claims 40, 43, and 49, the Applicant also respectfully submits that the Examiner's proposed combination changes a principle of operation of the Hughes reference. The Applicant reminds the Examiner that M.P.E.P. § 2143.01, last paragraph, pg. 2100-127, second column (8th Ed., Rev. 1, February 2003) states:

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**"THE PROPOSED MODIFICATION CANNOT CHANGE
THE PRINCIPLE OF OPERATION OF A REFERENCE**

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810 (CCPA 1959)."

The Examiner states on page 6, first paragraph, of the November 24, 2003 Final Office Action as follows:

"It would have been obvious to one of ordinary skill in the project/task/assignment management [Sic] at the time of Applicant's invention to incorporate Hughes et al's features into Deziel et al' invention, thereby providing a system which would allow [Sic] to break projects or tasks into smaller tasks or activities (plurality of assignments) and schedule them optimally and fully (maximally) employing the available resources having constraints."

Therefore, the Examiner proposes to modify the Deziel reference by breaking up the activities of the Deziel reference into smaller tasks, where each smaller task has an individual resource. As noted above and prior to any modification, each activity of the Deziel reference addresses a plurality of resources or more than one resource. See Figure 3a, circled portion, reproduced above.

Further, the Deziel reference explains in column 9, lines 16-19, the following:

"In the preferred embodiment a holding queue is utilized to prevent a low priority activity from being scheduled before a high priority activity which utilizes the same resource."

With the Examiner's proposed modification, each smaller activity of the Deziel reference will only have one resource. This proposed modification will eliminate a key function of prioritizing activities in the holding queue of the Deziel reference because each activity will be incapable of sharing a single resource since each activity will have only one resource. And thus, such a modification of eliminating a key function of the holding queue clearly changes a principle of operation of the Deziel reference. And it

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follows that the teachings of the Deziel and Hughes references are not sufficient to render the claims of the present application prima facie obvious.

In light of the differences between the claims and the references mentioned above and the change of a principle operation of the Deziel reference, one of ordinary skill in the art recognizes that the Hughes and Deziel references cannot anticipate or render obvious the recitations as set forth in amended independent Claims 40, 43, and 49. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Dependent Claims 41-42, and 45-49

The Applicant respectfully submits that the above-identified dependent claims are allowable because the independent claims from which they depend are patentable over the cited references. The Applicant also respectfully submits that the recitations of these dependent claims are of patentable significance.

CONCLUSION

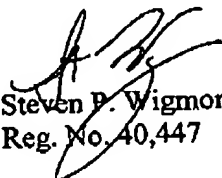
The foregoing is submitted as a full and complete response to the Office Action mailed on November 24, 2003. The Applicants and the undersigned thank Examiner Irshadullah for the consideration of these remarks. The Applicants has submitted remarks to traverse the rejections of Claims 40-49. The Applicant respectfully submits that the present application is in condition for allowance. Such Action is hereby courteously solicited.

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In the event the Examiner does not consider this application to be in condition for allowance, it is respectfully requested that the instant amendment be entered for purposes of Appeal. This amendment should simplify the issues for Appeal. Nonetheless, it should be unnecessary to proceed to Appeal because the instant application should now be in condition for allowance.

If the Examiner believes that there are any issues that can be resolved by telephone conference, or that there are any formalities that can be corrected by an Examiner's Amendment, please contact the undersigned in the Atlanta Metropolitan Area at (404) 572-2884.

Respectfully submitted,


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